ward the center of the fixed wheel in making one revolution around the fixed wheel? It points there but once and therefore the movable wheel makes but one revolution on its own axis, N. L. B.

Boonton, N. J.

MESSES. EDITORS :-- A wheel rolling once around a fixed wheel of the same size makes two revolutions on its own axis: you say "one" but avoid giving a demonstration anxiously desired by your readers--you are not obliged to give it, but must stand by the consequences. I maintain the "wheel" makes two revolutions on its own axis, this I will demonstrate with your permission, in the SCIENTIFIC AMERICAN; but should you refuse my offers, then I would necessarily get the assistance of some other paper. An answer would oblige Aurora. Ill. JAMES THIEREY.

In reply, if our correspondent will look at back numbers he will see that we have been engaged in demonstrating the subject for several weeks past. But it seems we do not pro gress quite fast enough for him; and he turns his wheel once too often for us. If he can write something interesting and short, we shall be happy to publish it.

W. E. H. replies as follows, to our comments on his article and diagram published last week :

" Until I received your paper of March 7th, I supposed that not only was I sound in the faith, but that my belief was known of all men.

"I most certainly hold that the movable wheel makes two revolutions on its own axis, while passing once around the fixed wheel. This I prove by showing that the index, b, secured to the movable wheel, points in every direction from its axis twice while passing once around the fixed wheel.

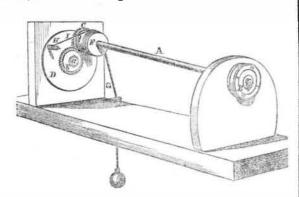
"With regard to the axis, I would say that an axis 'of a body' is 'that *line* about which the body revolves, or may be supposed to revolve.' It has no extension but length, and is no more capable of revolution than a cherub is of sitting down.

"If we once admit that an axis may be a cylinder, and revolve, such expressions as the earth's revolution *on* its axis every day, become absurd.

"For, if we suppose a pointer fastened to this so-called axis of the earth, near the pole, like the short pointer in the diagram of last week, it will turn with the earth each twentyfour hours. The earth, moving with the same angular velocity, the pointer will ever be directed to the same meridian; according to your argument the earth will not turn on its axis at all, seeing that, to turn over, it must have twice the angular velocity of the so-called axis. It was to avoid this difficulty that I used the word "bearing" so frequently in my letter. The axis of the wheel coincides with the central line of the bearing of which it is also the axis.

" Wм. Е. Н."

W. E. H. also sends us, from the office of the two-revolution philosophers, another very neat model illustrating their views, with the following note:



"MESSRS. EDITORS:—Having leisure, I have made another machine to illustrate the question The postulate here taken is, that when one end of a shaft revolves on its center or axis, the other does also. Two wheels, B C, are fastened to the opposite ends of a shaft, A, one end of which is pivoted in a movable disk, D, which rotates around a fixed wheel, E, of the same size as C; the shaft, A, being long and slightly inclined. The wheel, B, is to be turned by hand until it has made a complete revolution, when the opposite wheel, C, will be found to have moved but half way around the fixed wheel, E. Another turn of the wheel, B, will carry wheel, C, completely around E.

"I have, also, attached a pulley, F, to the wheel, C, on which a cord, G, may be rolled, and will be found to encircle the pulley twice in each 'orbit.'

cord, we shall then make clear to the eye the true and actual number of rotations of the wheel, upon itsown axis, in rolling once around the fixed wheel, E.

In order to separate the cord from the effects of the rotation of the disk, D, we have only to set the cord spool, H, upon the disk and extend the thread, I, to the pulley, F; and now, on rolling the wheel, C, once around the fixed wheel. E, the cord will be wound up once, because the wheel, C, has rotated once upon its own axis.

Our friend's model and diagram practically illustrate the error of the two-revolution philosophers, and prove the correctness of those who adhere to " one."

MESSRS, EDITORS :- Having been a reader of your valuable paper for twenty years except the four years that I was locked up in Dixey, I feel an interest in anything in which its opinions are opposed by any one, as I have always found them correct. I do not suppose that you need any assistance to show that you are correct on the wheel question. But as it is an open one, allow me to give my views on the subject L. M., and others are trying to prove to the world that there is a wheel within a wheel ; allow me to say that I am unable to see it. If L. M. will place a pin in the center of the fixed wheel and onein the center of the movable wheel and connect them by a strip or rod, and mark a point near the center of the movable wheel and pass the movable round the fixed wheel, he will find that the point marked will pass the connecting rod but once, therefore it makes but one revolution around its own axis, and one revolution around the fixed wheel, making two distinct revolutions. SAMUEL HAND,

#### Midville, Ca.

MESSRS. EDITORS :--Here is a mathematical solution of L. M's problem. If a wheel three feet in circum<sup>f</sup>erence is rolled once around on a plain surface it, of course, accomplishes just three feet distance, the axis also has traveled just three feet indicated by the dotted lime. Now when this wheel is rolled around another of the same size the axis will travel through a space of six feet, it being the circumference of a circle two feet in diameter.

Now for mathematics. If a wheel makes one revolution while its axis travels three feet how many revolutions does it make when its axis travels six feet? Ans. Two. Because six is twice as many as three. Surrender! all you "oneists" as gracefully as you may after such a persistent fight all on the wrong side. T. L. B.

#### Boston.

The question is not how far the axis travels, and  $\mathbf{w}$ e therefore decline to surrender.

MESSRS. EDITORS: Referring to the diagram in your last Vol. XVIII., page 133, of H. Anderson, Peekskill, N. Y., if the loose end of the thread be held at the center of the fixed wheel, A (the only place to hold it), H. Anderson will find the thread wound only once around the shaft of the movable wheel, B. A. R.

## Rochester, N.Y.

MESSRS. EDITORS :—As a solution to the question, "How many revolutions does a wheel make on its own axis rolling around another of the same diameter once?" A. C. Sekell tries to prove that the wheel makes two. Mr. Sekell in his diagram makes the wheel turn a quarter of a revolution at each right angle of the square. But in doing this he changes the center. The second center is at the extremity of the diameter of the first circle. But in thus changing the center he destroys the first circle. Therefore the quarter of a revolution made by this circle cannot be added to the quarter of a revolution made by the first circle in passing over the first side of the square.

Again, to prove it mechanically, suppose a wooden block squared, the sum of its four sides equal to the circumference of a wooden wheel. Putting an axle in the wheel, let us commence at the first corner of the square; roll the wheel on its axle to the second corner. Thus far one quarter of a revolution has been made. Now let us lock the wheel; change the center to the tire of the wheel; on that center swing the entire wheel around the second side, and we are ready to make the second quarter revolution; yet the wheel has not revolved on its own axis, for the axle has been locked. Unlock the axle, and we can make the second quarter as before. Newbern. P. W. T.

MESSRS EDITORS:—Every one seems to understand the wheel problem, but none seems to understand the cause of the difference of opinion. I think both sets of philosophers may congratulate themselves on being correct upon this question. The wheel makes one or two revolutions, according to the point from which it is contemplated. In relation to any

warding of freights further than Toledo. If the Erie directors had refused to meet the views of the railroad interest West, a junction would have been made with the Pennsylvania Central and the Baltimore and Ohio.

An English patent has lately been granted for an improved metal, from which it is claimed castings may be procured or steel manufactured in much less time and at a greatly reduced rate, than by other processes. After the ore is reduced in the blast f. rance to the state of molten crude metal, the furnace is tapped, and the liquid metal runs off into a vessel or receptacle, when a blast of atmospheric air of a pressure of four pounds to the square inch, and upwards, is introduced into the mass through a bollow stirring rod. The effect is the driving off of the impurities, and the metal may run directly into molds, or steel of a fine quality may be procured by adding unmelted spiegeleisen or other compound of iron and carbon.

The new West Shore Hudson River Railroad is advancing with commendable energy, and the contracts for the firstsixty mileswill be closed this week. The nesottations for the purchase of the Northern New Jersey Railroad by this company have been successful, and the latter will enter upon possession shortly. The new road will connect with the proposed Midland line to Oswego and the Lakes.

California is repidly extending her silk manufactures. It is announced that at the town of San José there has been started a silk mauufactory with a capital of \$100,000. The machinery has arrived, the foundations of the building are laid, and the worms are at work.

The Cheyenne papers claim that besides her cold treasures the territory of Wyoming proves to be very rich in the baser metals. Copper, iron, and lead are found in inexhaustible quantities along the base of the mountains for a long distance, from the Colorado line north. Good coal can be found all over the Laramie Plains, and in the same vicinity the discovery of oil and mineral springs has been reported.

The proposd Mexican Central Railroad, if built, will prove of the greatest benefit to that Republic. The design is to construct a road from the fitty of Mexico, four hundred and fitty rules, to Matamoras. From the Rio Grande to the Mississippi, supposing Vic.sburg to be the objective point, is a distance of six hundred and forty miles. There is a road now running from Vicksburg west to Monroe, aiming at Shreveport, while an other is in pro gress from Houston easiward, aiming to touch both New Orleans and Baton Rouge. With the entire business of the best part of Mexico as a prize, both these roads would soon be completed.

The famous Comstock Lode, probably the most productive mineral vein in the world, is a strip of land only three miles long by600 yards wide. The yield is valued at \$12,000,000 annually. Five thousandmenfind employment in working it, and the produce for each workman is about \$2,000 per annum. In 1865 there were for ty-six companies working it, and they bad excavated about twenty-eight miles of tunnels and drifts. The longest tunnel made is 3,200 feet; the greatest depth penetated is by the Gould & Carry, 821 f eet.

General Palmer, the Treasurer of the Kansas Pacific Railway, has been exploring aroute to the Pacific by the thirty-fifth parallel of latitude. He reports that rarely have they been obliged to resort to the maximum grade permitted by Congress, and on the highest summit on the route there will never be as much endw as on the Alloghanics; and for a summer and late sutumn resort, there is not a finer spot on the continent than "President's Park." at that summit. If the company obtain the subsidy next spring, the road cau be completed in four years' time.

# Becent American and foreign gatents.

GOVERNOR.—Ephraim P. Rogers, Corning, N. Y.—This invention relates to a new and improved method of constructing governors for steam engines an other parposes, whereby the same are rendered more effective in their operation, and whereby the expense or cost of a governor is materially lessened.

FRAME FOR CARRIAGE TOPS —James H. Flagg, Perkinsville, Vt.—This invention relates to an improvement in trames for carriage tops, intended for a top to be used as a substitute for an umbrella.

CHURN.-C. H. Carver, Taunton, Mass.-This Invention has for its object to furnish an improved churn, simple in construction, easily cleaned, easily operated, and which will do its work quickly and thoroughly.

CRIBATTACHMENT FOR BEDSTEADS.—Harriet Ruth Tracy, New York city. —This invention has for its objectto furnish an improved bedstead and crib, so constructed and arranged that when the crib is not in use and is pushed into its placein the bedstead, the said bedstead and cribshall present a neat and uniform appearance, giving no indication of the presence of the crib attachment.

SELF-RAISING FLOUR. -- Wm. C. Hughes, Scio, Mich.--This invention relates to a method of preparing self-raising flour, and consists in a thorough and intimate incorporation of the fermenting principle with the flour when the grain is ground, in a certain proportion and at a low temperature.

HARNESS PAD THEE, -J. W. Hinman, Rerlin, Wis. - This invention relates to the construction of a pad tree for gig. coach, or other harness, and consists in attaching the opposite sides or sections of the pad to a center piece by means of joints or binges, whereby it is rendered flexible and self-adjustable to the back of a borse, yielding on one side or the other freely to bis motion, and resting in an easy and comfortable manner.

SPEING BED BOTTOM -E. E. Worden and H. Wilms, Brandon. Vt.-This invention consists in the use of elliptic springs or stays, and in the manner in which the upper frame is supported thereby, and also in the manner in which the spiral springs are supported and held in position.

WASHING MACHINE -P. F. Bindewald, Strongsville, Ohio.-This invention has for its object to furtish an improved washing machine, simple in construction, easily operated, effective in operation, and which shall be made wholly of wood, so that there may be no darger of the clothes being injured by iron rust.

SECURING LABELS IN GLASSWARE.-Edward W. Davis, Pittsburg, Pa.-This invention relates to an improved method of securing labels of brass and other metallic bodies in glassware.

ANIMAL TEAP.-William Miller, Chicopee, Mass.--This invention has for its object to furnish a neat, simple, and effective means for catching rats, mice, and other animals.

HAEN ESS MOTION FOR LOOMS.—James Greenhalgh, Sen., Woonsocket, R.I. —This invention has for its object to improve the construction of the parls of a loom, by means of which motion is imparted to the harness, so as to sim-

the pulley twice in each of bit.	point from which it is contemplated. In relation to any	a loom, by means of which motion is imparted to the harness, so as to sim-
"Middletown, Conn. W. E. H."	point from which it is contemplated. In relation to any	plify their construction and make them more effective in operation.
In reply to our correspondent's postulate, it is sufficient to	wheel, it makes one revolution. In relation to any point out	FASTENING METALLIC COLLARS ON BOTTLESEdward Wattis, Phi'ade.
say, that, because both ends of a shaft make the same rota-		phia, Pa.—This invention relates to an improvement in the method of secur-
tion, it does not therefore follow that a wheel revolves twice	side of this circle it makes two. In relation to the sun, the	ing metallic collars to the necks of glass bottles or flasks, whereby the same
upon its own axis, in rolling once around a fixed wheel.	moon revolves upon its axis. In relation to the earth, it is	are securely fastened without cement, and are rendered durable and firmly
The above diagram represents a device by which compound	fixed.	attached while the bottle lasts.
rotary may be converted into direct rotary motion, or vice	Bristol. B. B. L.	COMBINED BOILER AND HOT AIR REGISTER B. B. Perkins, Chestertown
versa. The axis of wheel, C, is carried in the rotating disk or	It appears to us that both sides cannot be right. It is a	Md.—In this invention a boiler connected with the register is attached to the side or end of the hotair flues in houses, for the purpose of utilizing the beat
carrier, D, which has its axis of motion at $a$ ; and by reason	question of fact, not of optical appearance.	conducted away by the walls of the flue and of supplying hot water to the
of the gearing together of C E (the latter being fixed) the		upper rooms of the house.
	MESSRS. EDITORS:-If you want any wheels, to test "L.M.'s"	RIOE PLANTERElijah Wagoner, Westminster, MdThis invention is a
wheel, C, is caused to rotate once upon its own axis for each	principle with, we can send you a few dozen. Every one here	machine for planting and covering rice, by whic's all the operations required
rotation of the disk, D, upon its axis, $\alpha$ . These motions are	has been manufacturing wheels for the last three weeks.	in the planting of that article are as carefully and accurately performed as if
both transmitted through the gear teeth; and a cord, $\bullet$ , hung	North Madison, O. H. R. S.	done by hand, and by which one man is enabled to perform the work hitherto
upon pulley, F, or upon wheel, B, will be wound twice for		requiring the services of dozens of laborers.
each rotation of the disk, D, because the effect of both ro-	MANUFACTURING, MINING, AND RAILROAD ITEMS.	ENVELOPESigmund Ullman, New York city1 + 's invention a new
tations, namely, the rotation of the carrier or disk, D, upon		method of constructing, folding, and sealing the envelope is employed, by which the use of adhesive gum is dispersed with, and when the envelope is
its axis, a, and the rotation of the wheel, C upon its own	The extension of the Erie broad gage track to Chicago is no longer doubt -	sealed it is impossible for any one to open and close it again without leaving
axis, are both imparted to the cord.	ful. The contract tor the building of the intermediate connection of the Great Western with the Toledo, has been already made. This move has	evidence of the transaction upon it.
Now when we separate these two motions and allow only	been demanded by the Western freight interest, on account of the high ratio	LIFE SAVING APPARATUS John B. Stozer, New York city This inven-
one of them, namely, that of the wheel, C, to act upon the		tion has for its object to furnish an improved apparatus by meane of which

persons, when compeled to commit themselves to the water in case of ac. cident on steamboats or shipboard may sustain themselves for days, or until they are resonred or reach a place of safety. Patented Feb. 4, 1868.

BALLASTING VESSELS .- John B. Stoner, New York city .- This invention has for its object to furnish an improved more of temporarily ballasting a vessel, when necessary, by lowering weights into the water, so as to prevent the rolling or capsizing of said vessel. Patented Feb. 4, 1863.

MECHANISM FOR OPERATING STATIONARY MACHINERY .-- Galusha Meranville, Hampton, N. Y.-This invention relates to a new arrangement of gear wheels, worms, cranks, and levers, for driving suction pumps, force pumps, and other suitable stationary machinery, and it consists in the general arangement of gear wheels for obtaining the aforesaid object, and also in a new method of converting rotary into oscillating motion.

SCREWCAP FOR OIL CANS .-- Wm, Rigg, London, England .-- This invention relates to a new device to be applied to oil cans, in which kerosene and other oil is usually transported to foreign countries, so that the can may, when it arrives at its place of destination, be emptied without the loss of oil and with outsoiling the attend.nts.

 $Trip \; H {\tt AMMER,--Charles} \; \nabla {\tt ogel, New York city.--Tbis invention consists in}$ a novel connection between the shank or stem of the hammer bead and the beamthrough which the hammer head is tripped. Also in so constructing ton, S. C. - This invention relates to an improved mode of treating natural the beam carrying the hammer stem or shank, that it can be adjusted for phosphates or phosphatic minerals and earths for the purpose of rendering raising the hammer head to a greater or lesser hight. Also a in novel combination and adaptation of springsimparting additional force and strength to the blow of the hammer, their comoination and arrangement being such as to be susceptible of adjustment for a blow of greater or lesser degree of force and strength. Also in a novel arrangement of parts for arresting the mo tion of the hammer without requiring the driving mechanism to be stopped the arrangement being such as to be self operating when set free, and to ar rest the hammer when at or near the end of its up ward stroke or movement and there hold it, leaving the anvil exposed. And, finally, in an arrangement of parts upon the driving shaft of the trip hammer on which they are hung to swing about and over its driving pulley, in combination with a treadle or other suitable operating lever, for the purpose of enabling the driving beltto be more or less tightened about the driving pulley, as may be de ired, or found necessary in therunning of the hammer.

MANUFACTURE OF BUTTONS .- Lewis Moses .- New York city .- This inven tion relates to a new manner of securing the eyes or loops of glass buttons to the body of the buttons, and consists in the use of liquid glass mixe 1 with finely powdered glass or other mineral matter, by which a sheet metal plate to which the said loop is soldered, or cemented to the underside of the button, in which a recess has been formed for the purpose. This invention is applicable to all glass or porcelain buttons and ornaments, such as breastpins, etc.

TOYGUN-S Hubbard, Quincy, Ill.-This invention consists in the applica tion of an elastic cord to a toy gun, insuch amanner that it may be stretched or distended and held in a distended state by a catch with trigger at ached the cord being connected to a slide which works within the barrel of the gnn, and all so arranged that by pulling the trigger, and thereby operating the catch and releasing the cord, the latter will, by its elasticity, eject the shot, or other missile, from the gun,

RAKING AND BINDING ATTAOHMENT FOR REAPING MACHINES.-Christopher Lidren, Lafayette, Ind.-This invention relates to an attachment for automatically raking and binding grain, and is designed to be applied to reaping machines, and receives its motion from one of the driving wheel thereof

SPRING ATTACHMENT FOR THILL COUPLINGS .- Kingston Goddard, Rich mond, N.  $\nabla$ .—This invention consists in the application of a spring to a thil coupling, in such a manner that the jolting or jarring of the vehicle, the vertical movement of t e pent axle, caused by the pent wheels passing over uneven surfaces and obstructions, will not be communicated in an appreciable degree to the thills of the vehicle, and the horse thereby relieved in the labor of drawing the vehicle, especially in traveling over rough roads,

relates to an improved means for connecting the thills of vehicles to their front axles, and it has for its object the attachment of the thills in such a man ner that the latter may be connected to and detached from the axle with the greatest facility, and when attached with the horse harnessed before the vehicle, casual detachment of the thills rendered impossible.

DUST PAN.-Samuel E. Condon, Brooklyn E. D., N. Y.-This invention re lates to an improvement in dust pans for taking up dust, sweepm2s from floors or carpets, etc., so that the latter may be carried around a building from room to room, and the pan used and the dust deposited in the chamber nntil the latter is filled, when the dust chamber may be readily deprived of its contents and the sweeping, if not entirely finished, resumed.

ATTACHING SHOES TO BRAKE BARS - James Brahn, Jersey City, N.J.-This invention relates to an improved marner of attaching shoes to the brake bars of railroad cars, whereby the shoes may be readily attached and detached, all bolts and screws being avoided, and the shoes, when attached, effectually prevented from being casually detached. The invention also relates to a pe culiar application of india rubber to the shoes, whereby a requisite degree of plasticity is allowed the same, in order to prevent wear and tear.

CLOVER SEED HARVESTER.-S. L. Stockstell and W. H. H. Scarff, Medway Ohio -This invention relates to a machine for gathering or harvesting the heads of clover, cutting the heads from the standing starks, and consists of a suitable hed suspended from an axle and provided with a cutting and raking attachment.

ORNAMENTING BOOTS AND SHOES.-Georgs Smith and Godfrey Smith, New York City.-This invention relates to a mode of ornamenting boots and shoes, designed as a substitute for and an improvement upon the ordinary mode of producing ornaments by crimping the leather through the medium o' dies.

MACHINE FOR CUTTING VENEERS. -Henry Cassing, New York city. -Thus nvention relates to a machine for cutting veneers, and cousists in the employment or use of a reciprocating knife, arranged to work in a plane slight ly inclined from a vertical position, in connection with a laterally moving log carriage, all being combined and arranged in such a manner that the knife is made to operate with a drawing cut, and perform its work in a per fect manner, and with but a moderate expenditure of power.

BOOT CRIMPING MACHINE .- E. H. Rice, Port Henry, N. Y .- This invention relates to a machine for crimping boots, and it consists of a series of rotary trees in connection with a plurality of jaws or pressure plates, all construct. ed and arranged in such a way as to admit of boots being crimped rapidly and in a perfect manner.

Scientific American.

GATE HINGE .- Paul Dennis, Schuylerville, N.Y.-This invention consists of an improved gate binge and has for its object increased strength and durebility of the hinge and diminution of the friction in opening and closing the gate.

MACHINE FOR BORING POST HOLES .- A. Q. Allis, Dayton, Ohio .- This invention consists in operating a vertical boring bar by crank and gearing and in an arrangement whereby the auger is fed down into the ground by a screw and raised from the ground by a lever and also in the manner in which the feeding screw nut is made to engage with and is detached from the boring bar and also in a boring tube.

COMBINED PILLOW AND SUPPORTER .- Emeline T. Annis. Mt. Morris, N Y. - This invention consists in forming the pillowon a plate or flat surface of metal or wood or some other suitable material, and attaching thereto a jointed bracket and supporting rod so arranged that the pillow may be adjusted to suit the wants of the invalid or other person occupying it by turu ing a thumb nut.

TREATING PHOSPHATIC MINERALS OR EARTHS .- John Commins, Charles them soluble to serve as fertilizers.

HORSESHOE .- James Jorey, Westville, Conn.-This invention relates to a horseshoe of that class which are provided with removable or detachable calks. The invention consists in having the calks constructed and applied to the shoe in such a manner that they may be not only detached from the shoe but also reversed and secured thereto in such reversed position as to admit of a freshcutting or sharp edgefor the calks being obtained, the calks being constructed with two edges to obtain this result. If necessary or desired one edge of the calks may be made sharp and the other edge comparatively blunt so that a horse may, by a very simple adjustment of the calks be provided with either sharp or blunt calks, be either sharp or "rough" shod, the latter condition being preferable when the roads are not very suppery or icy and the former condition preferable when there is much ice.

BREAD AND VEGETABLE CUTTER.-Hiram A. Titus, Gloversville, N. Y.-This invention relates to a new bread and vegetable catter which is so fitted at its two ends in a frame that when it is drawn through the article to be cut a combined drawing and pressing cut will be imparted to it.

MACHINE FOR CLEANING COTTON.-Richard H. Hilton, Newbern, N. C.-This invention consists of a perforated case, into which the cotton is fed from the gotton gin, together with rollers for the purpose of ejecting the cleaned cotton in the form of a sheet or pressed web more convenient for packing.

MEASURING AND TALLYING ATTACHMENT FOR THRESHING MACHINES.-W. F. Abbott, Margo, Ill.-This invention relates to a machine for measur-ing grain, and tallying the number of measures of the same, which pass through it, and consists of an elevating spout measuring chambers and automatictallying register, and other mechanism perfecting the whole.

CLEAT -Jonathan Bangs, South Dennis, Mass.-This invention consists of a lever, having on its upper side a hook into which the line or rope is passed. and is thus passed under the handle so that any draft upon the hook will press down the handle, and thereby bindnpon the line.

CATTLE PRICKER.-R. A. Carsonand W. T. Peter, Briensburg, Kv.-This in vention relates to a new method of constructing apparatus whereby catprevented from lying down away from from home at night, and tle are whereby also they are prevented from jumping fences, and are made more manageable when they are driven by droves. It consists of a leather strap fastened around the foreleg of the animal, above the knee, said strap having sharp pieces of metalsecured to the same, and bent downward, so as to prick the animal when it attempts to lie down or jump.

GEAIN REGULATOR FOF GRIST MILLS .- E. W. Hitchings, Potsdam, N. Y. This invention refers to an attachment to grist mill stones, for the purpose of regulating the supply of grainpassing into the stone. It consists of a cylinder carrying a governor which regulates the opening through which the grain falls according as the stone is driven fast or slow, together with other devices perfecting the whole.

WAGON LOCK .- C. A. Kenyon, McGregor, Iowa.-This invention relates to a new and improved method of constructing wag on locks, by means of which the brake is more firmly held against the wheel, and whereby also the pressure of the same is more quickly and easily taken off. It consists of a pawl, pivoted in a slot in the lever by means of which the brake is operated, engage ing in the teeth or a metallic segment, so as to hold the brake firmly against the wheel, after the hand of the operator has been removed. It consists also of the lever being bent at the lever end, and provided therein with a slotin which the pivot on which said lever turns may move, so that by the reverse motion of the lever the slot in the bent end of the lever will slide over the pivot, and the pressure of the brake upon the wheel will be relieved.

SANDHEADS FOR AXLES.-Norman Maxham, Hancock.Vt.-This invention relates to a new and improved method of constructingapparatusfor preventing s and or dustfrom working into and injuring the boxes or axles of carriages. It consists of a sand head attached to the hub, revolving with said hub around the axle within a cover or box attached to the axle, said cover being provided on the under side of the same with a nick or notch through which sand or dirt caught will fall to the ground.

DRILL AND COUNTERSINK .- P. A. Whitney, Woodstock, Vt.-This invention relates to a new and improved method of constructing drills and countersinks, whereby they are combined in the same tool, are more simple in their construction, and more certain in their operation. It consists in the countersink being in two parts, with the drill between the same, keyed in such way in splines in the chuck as that the same are adjustable, the chuck being screwed into the lathe socket so that the two segments of the same are forced firmly together, thereby holding the drill and countersink firmly in the chuck. It consists also in one of the splines in the same segment of the chuck being deeper than the other, and deeper, also that the opposite spline in the outer segment of the chuck, whereby the cutting edge of counter sink is brought into proper position for cutting a countersink.

CURLING IRON.-Samuel E. Condon.-Brooklyn, E. D., N. Y.-The present invention relates to irons used for curling in the dressing of a person's bair, and consists in providing for the iron a casing or sleeve of suitable construc tion to incase and hold the same, whereby the iron, being first heated by in serting it in a suitable furnace therefor or otherwise, and then placed in such case, the necessary heat is imparted thereto for curling the hair, when applied to the same, the combination of the case with the iron always preserving a smooth and even surface for being presented to the hair, however much the

215.-FURNACE.-Henderson Ross, Pittsburg, Pa. Jan. 21, 1868

219.—LIBERATING THE COLORING MATTER OF MADDER. ETC., FROM THE LIGNEOUS MATTER OR CELLULOSE.—Alfred Paraf, Boston, Mass. Jan. 21, 1868. 269.-PULL FOR DOOR BELLS .-Sterling Bonsall and Louis Hillebrand, Phil-dephia, Pa. Jan. 25, 1868.

278.-HATS, BONNETS, BTC., AND MACHINERY FOR MANUFACTUBING THE SAME.-Henry Kellogg, New Haven, Conn. Jan. 27, 1868. 280.-MACHINERY FOR GRINDING AND POLISHING CONCAVE SURFACES.-Wm C. Licks, New York City. Jan. 27, 1868.

31.-MACHINERY FOR FORMING LAT BODIES.SEIRTS, ETC.-John H. Pren-tice, Brooklyn, N. Y. Jan. 27, 1863.

299.-BELLOWS FOR FORGES.-John and Walter Bowden, Brooklyn, N. Y. Jan. 28, 1868.

317.-BREECH-LOADING FIRE-ARMS, AND CARTRIDGES AND BULLETS FOR THE SAME.-Hiram Berdan, New York city. Jan. 29, 1868.

# Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in formation from us; besides, as sometimes happens, we may prefer to ad-dress the correspondent by mail.

SPECIAL NOTE—This column is designed for the general interest and in-struction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, house when paid for as advertisemets at \$100 a line, under the head of "Busi-ness and Personal."

All reference to back numbers should be by volume and page.

- T. H., of Wis .- " In dispute A makes the following proposition: Of two equal bodies, impelled by equal force against equal resist ance the time of their arrival at their respective destinations must be in the proportion of those listances, or : Equal bodies impelled by equalforce against equal resistance will describe equal space in equal time. To this B dissents and asks for proof. A says the proposition is self-evident. What is your opinion?" We regard the proposition as self-evident and cannot conceive the ground of B's denial.
- C. M. T., of Ind.-"How can I make a lithograph transparent? I have tried balsam of fir and dammar varnish but specks appear after drying." We think Canadian balsam, if pure and carefully laid on, would be effectual.
- J. R. W., of N. C.-" What per cent of water is expended to elevate a given quantity of water to a certain hight by the hydraulic ram?" A good ram will yield effectively 60 per cent.
- L. M., Jr., of Pa., is anxious to build a "paper boat" and wants to ascertain the sort of paper and modus operandi. Such boats have been built which were light, safe, and durable. A patenton making boats of paper is owned in part by Elisha Waters, Troy, N.Y. Write to him for information
- O. S., of Qhio.—"Is there anything gained by applying steam to the surface of a wheel, if confined as closely as in a steam engine cylinder creating no more friction? I have a simple device by which I can do this successfully." Yes. If you can make a rotary engine that has no more friction than a reciprocating one you have an invention we would like to see.
- H. P. D., of Texas, says that kerosene oil on whet stones is superior to any other for the purpose, as it keeps the stone in better condition and assists the operation of sharpening.
- J. C. B., of Ill.-Tubing for an artesian well of 200 feet depth may be made of two-lich gas pipe, connected by thimbles and screw threads in the usual way. Piping or casing of cast iron four inches diam eter should be sunk to the first stratum of rock.

# Business and Versonal.

# The charge for insertion under this head is one dollar a line.

Two Valuable Patents for sale-one for a Fertilizer, and the other for Harness Wardrobe. Address H. E. Pond, Franklin, Mass.

Bartlett's Reversible Sewing Machines are the cheapest re-

liable Machines, Bartlett Machine and Needle Depot 569 Broadway, N.Y. Merriman's Patent Bolt Cutters-Best in Use. Address, for circulars, etc., H. B. Brown and Co., New Haven, Conn.

For all sizes of Tube for Steam, Gas, or Water, and the most improved Tools for Cutting off and screwing the same, address Camden Tool and Tube Works Co., Camden, N.J.

Incrustations removed by Winans' Boiler Powder (11 Wall st., N.Y.), 12 years' use proves it reliable and unipjurious.

Inventors and Patentees wishing to get small, light articles manufactured for them in German Silver or Brass, address Schofield Brothers, Plainville, Mass.

Manufacturers of Ditching Machines of from three to four feet wide by same depth, address M. Wbite, Jr., New Orleans.

Charles Ball, Bridgeport, Conn., makes Odometers.

Hardware men, agents, and others, address Robert Faries,

Decatur, Ill., concerning his attachment to the monkey wrench for pipes, A Rare Chance for Agents. Large profits and little capital needed. For sample and circular, inclose 25 cts. to Smith, Shepard & Co., P. O. Box 867, Waterbury, Conn.

Wanted-Address of Gas Holder, Purifier, and Condenser Makers. Apply to Edward T. Moody, C.E., Omaha, Neb,

For Improved Lathe Dogs and Machinists' Clamps, address, for Circular, C. W. Le Count, South Norwalk, Conn.

Address J. S. Elliott, East Boston, Mass., for best machinery for making lime and sand huilding blocks.

M. K. Anderson's patent self-acting alcoholic blow pipe wanted. Theywere made at Painted Post, N. Y. Address, stating price, or bring two to E. S. Taylor, No. 11 Adams st., Brooklyn, N. Y.

Parties in want of the best Pin Machines are informed that

MOWING AND REAPING MACHINE .- James H. Redfield and Walter J. Cox, Salem, Ind.-This invention relates to a cutting apparatus, the same consisting of a series of hook shaped teeth, attached to or formed on a bar, the ends of which are attached to or connected with cranks, or crankpulleys, which operate the teeth or sickle barso that each tooth of the bar will pass from the center of one guard or finger across the space and into the adjoining guard or finger, and in thus moving act with a drawing cut upon the grain or grass, cutting the same in a perfect manner, and with a very moderate expenditure of power. The invention further relates to a new and improved means for discharging the grain in gavels from the machine, and further, in a peculiar manner of applying the frame which supports the catting apparatus and grain-discharging.device, to the main frame, whereby the cutting apparatus may be adjusted higher or lower, as desired, with the greatest facility.

BED BOTTOM-John C. Fry. Sidney, Ohio.-This invention relates to a new manner of secaring the wire for holding the elastic rings, in the cnds of the slats, and in the cross-picces that are secured to the bedstead. The said wires are secured in such a manner that the ends of the slats arc not only not weakened by their application, but are actually strengthened and prevented from solitting.

COSMETIC.-J. M. Wilson, Seguin, Texas.-This invention or discovery re lates to a new and useful improvement in the composition of a cosmetic for removing treckles or tan discoloration from the skin and improving the complexion. This improvement consists in combining certain chemical ingredients and making a solution thereof with which the skih shall be wet for the purpose aforesaid without injury to the tissue.

iron itself may become "scaled " from the action of the fire thereon.

BUCKLE OF FASTENEE FOR STRAPS, ETC .- S. W. Durham, Ipava, Ill .- This invention relates to an improved fastener or buckle for securing and fastening the end of a strap when turned over at its end upon itself for forming a 100p

LITHOGRAPHICAND AUTOGRAPHIC PRESS .- Chas. C. Maurice, New York city.—This invention relates to a lithographic, or other printing press, in which the stone or block is held in an adjustable frame, which can be expanded by the stone of th ed or contracted, so as to be adjusted to stones of different widths.

CONCRETE BRICK MACHINE .- Isaac Pardee, Vineland, N.J .- This inven tion relates to a new machine for pressing and forming concrete stones for building purposes, in a separate press, which is so constructed that it can be easily handled, and that the ready pressed concrete can be easily removed from it.

## Inventions Patented in England by Americans.

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHE.

SEWING MACHINE.-Singer Manufacturing Company, New York city. Jau. 20, 1868.

214 — APPARATUS FOR INDICATING THE RELATIVE POSITIONS AND MOVE-MENTS OF CERTAIN HEAVENLY BODIES.—John Davis, Allegheny City, Pa. Jan. 21, 1868.

207 .- SECTEING CORES IN BOTTLES .- Richard Scrivener, New York city. Jan. 21, 1868.

we are now prepared to receive orders for them. We have also on hand one machine for No. 4 pin, for sale low. Hoxie & Tolles, Hartford, Conn.

Patentees desiring to give exclusive right to dispose of Territory or their articles to a reliable firm who have the facilities for, and will advertise them, in every county in the United States, at their own expense, should address Oliver Crook & Co., Dayton, Ohio, and inclose a circular describing their patent.

Manufacturers of Agricultural Implements send circular to A. H. Briggs, Milton, Ky.

Manufacturers of Light Metallic Tubing please correspond with J. S. Lawson, Disco, Mich

Manufacturers of Ditching Machines address, with description, D. A. Griffiths, St. Charles, Mo.

Buckelew & Waterman, 716 Market st., Philadelphia (city Sealer's office), Manufacturers and Dealers in weighing scales, weights and measures, will take the agency for some saleable articles.

A Practical Man wanted to make Wood Acid in crude. Also, Book Seliers, having books treating upon the subject, pleasesend their address to Henry Winter, Honesdale, Pa.

Make your Patents Pay !- J. H. White, Newark, N. J., winmake and introduce allkinds of Small Wares in Brase, Tin, and Iron.