COUNTRY COTTAGE AND STABLE.

We complete the series of designs which we recently published, extracted from Downing's Cottage Residences, published by John Wiley & Son, New York city, with the accompanying engravings of a very tasteful and elegant country dwelling (Figs. 126 and 127), and of a neat and commodious stable (Figs. 99 and 100), which might be erected in connection therewith. The material for the construction of the cottage is brick, and a very picturesque style of architecture has been followed, with which the interior fittings of the house are designed to harmonize.

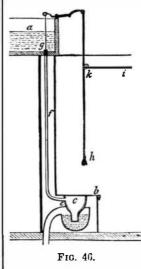
There is a large front porch leading to the vestibule, which is separated from the hall by an ornamental screen of carved chestnut. The flooring is of encaustic tiles of ornamental pattern. The main hall is large and roomy, and communicates at the right with a library, which opens into a small conservatory or flower alcove. The parlor immediately in rear of this apartment is a spacious room, and fronts upon a broad veranda. The dining room is supplemented by a butler's pantry, and contains several closets and other conveniences. This story is ten feet high and finished in chestnut. The basement is similarly divided, the partitions being of brick to insure a strong support to the floor above. The kitchen is under the dining room and has three large windows.

The second story is finished in chestnut and pine, and comprises three square chambers and a small servants' room. The hight from floor to ceiling is ten feet. There are open fire places in all the rooms, and provision is made for a portable furnace in the cellar.

In constructing the house, blue stone trimmings, neatly dressed, may be tastefully employed, and the bricks for the outside facings should be selected for uniformity of tint and sharpness of outline, and laid in dark colored mortar. The roofs are slated and surmounted by ornamental cresting of cast iron. The estimated cost is about \$8,000, but it is probable that, near cities or in localities where the ruling rates of building materials are high, this sum would be somewhat exceeded.

The stable is of quite ornamental form, and is designed to be built upon sloping ground. It has beneath it another story for farm horses, cows, cellar for roots, etc. (not shown in the elevation), making altogether a very complete building. It is constructed of sound timber, sheathed with matched pine plank, battened, and the whole filled in with able to those located on streets going east and west, in a brick. The walls of the cellar story are blue stone, laid in sanitary estimate. In the first, here at the north of the equamortar. The plan shows a carriage roon, double floored and tor, the sun shines brilliantly in the forenoon on the front, and subscriptions entered from that date if desired.

ceiled all around, with a harness room and separately inclosed stairway in the rear. On the left is a tool room, workshop, etc.; on the right a stable with stalls for four horses. Over the whole is a large loft for hay, with mouths in the floor to feed the racks below. The cost would average from \$2,500 to \$2,800, depending upon expense of labor and ma-



In connection with our present subject, we subjoin an engraving of a good and cheap arrangement of water closet (Fig. 46), which may be easily introduced into any dwelling, thus avoiding the necessity of the ordinary unsightly and disagreeable edifices in the rear. The cistern, a, may be at any distance from the seat, b, provided it be on a higher level by four or five feet. The basin, c, is an inverted hollow cone, and communicates with a closed leaden vessel, d, called the smell trap. In the side of c, at e, is a pipe, f, leading to the cistern, at its entrance into which is a close fitting valve, g. When it is desired to allow the water to rush down into

the basin, it is only necessary to pull the string, h, which, if the cistern be at a distance, may pass over several pulleys. In order to insure the descent of a quantity of water to the basin every time it has been used, a cord, i, may be joined to h, and passed over a pulley, k. The end is then fastened to the upper part of the door of the closet at such a distance as will suffice to lift up the valve, g. The door should have a spring to shut it, lest it be left open by neglect. The waste pipe from the water closet should leave the house by a properly fitted underground drain, and should either terminate in a covered drain or sewer at a considerable distance or in a well or cistern for liquid manure, the contents of which may be turned to valuable account.

THE POSITION OF A HOUSE.

Houses on streets running north and south are far prefer-

and with nearly equal force in the afternoon on the rear. Thus dampness is expelled, and the whole edifice is dry and far purer for its solar exposure. If a house is on an east and west street, those fronting north are decidedly the best for a residence, because the sun's action on the yard, the kitchen, and usual regions of neglected accumulations, purifies and modifies the humid atmosphere that is sure to predominate in yards and the back part of houses whose rear is north of the street. Thus circumstanced, the back rooms are never so pleasant, cheerful or economically warmed in winter, as when on the south side. Opening on the street, the front of such gets both light and air by reason of the frequent swing of the front door.

Manufacture of Putty.

One of the largest manufactories of this substance is that of Raynolds & Co., at Bergen Point, N. J., and the process is thus described by a correspondent of the New York Times:

Only whiting and linseed oil are used; no barytes or other adulteration are introduced. The whiting and linseed oil are roughly mixed in wooden troughs—two gallons of oil to 100 pounds of whiting-and are then shoveled into the mills, 750 pounds forming a batch. The chaser, which is an enormous iron wheel revolving horizontally in a pan like a fountain basin, is at once set in motion. It gradually works the whiting and oil together, two scrapers turning the mass up into a ridge in the center, on the principle of a plow share. In twenty minutes the putty is thoroughly kneaded into a pliable and lubricated mass, and is ready for packing. The daily product of the two mills is about 12,000 pounds. The putty is packed in ox bladders, tubs and barrels; about 10 pounds to a bladder, 100 pounds to a tub, and 720 pounds to a barrel. It is amusing to watch the workmen stuffing the bladders. They seize a lump of putty and stuff it into the bladder with their thumbs with astonishing rapidity. A bladder is filled and tied in about ten seconds. It rather reminds one of sausage making, in our grandmothers' days. The following figures will give some idea of the extent of this business: Last year the firm packed 2,027,962 pounds of putty in tubs and barrels, and 696,683 pounds in bladders, the latter using up no less than 62,116 bladders.

ALL new subscriptions to the SCIENTIFIC AMERICAN will be commenced with the number issued in the week the names are received at this office, unless back numbers are ordered. All the numbers back to January 1st may be had,

A PICTURESQUE BRICK COTTAGE.



Fig. 126.

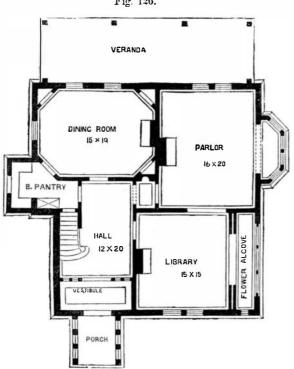


Fig. 127.

A CARRIAGE HOUSE AND STABLE IN THE RUSTIC POINTED STYLE.



Fig. 99.

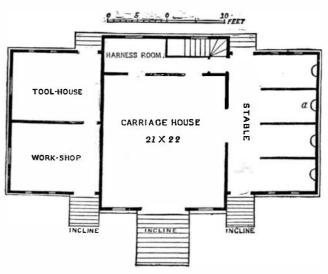


Fig. 100.

The Proportions of Ocean Steamers,

In publishing (on page 309 of our current volume) Mr. W Cunningham's letter on the proportions of ocean steamers, an error in the engraving gave an incorrect impression as to the relative widths of the vessels. We therefore reprint the dimensions, with new illustrations accurately drawn to scale.

Baltimore, N. G. Lloyd's line-Length 185 ft., beam 29 ft.; length to breadth, 6:88. Peruvian, Allan line-L. 270 ft., b. 88 ft.; length to breadth, 7:11. Moravian, Allan line-L. 290 ft., b. 39 ft.; length to breadth. 7.44. Leipzig, N. G. Lloyds' line-L. 290 ft., b. 89 ft.; length to breadth, 7:44. Minnesota, Williams & Guion line-L. 332 ft., b. 42 ft.; length to breadth, 7:90. Rhein, N. G. Lloyds' line-L. 832 ft., b. 40 ft.; length to breadth, 8:30. Westphalia, Hamburgh line-L. 840 ft., b. 40 ft.; length to breadth, 8:50. Pennsylvania, American S.S. Co.-L. 343 ft., b. 43 ft.; length to breadth, 7.91, Russia, Cunard line-L. 358 ft., b. 43 ft.; length to breadth, 8.88 Queen, National line-L. 358 ft., b. 41 ft; length to breadth, 878

Atlantic, White Star line-L. 485 ft. b. 41 ft.; length to breadth, 10.61.

Ville du Havre, French line-L. 423 ft., b. 49 ft.; length to breadth, 8-63

City of Montreal, Inman line-L. 433 ft., b. 44 ft.; length to breadth, 9:84.

A New Window Awning.

Mr. George W. Gerau, of No. 359 Fulton street, Brooklyn N.Y., has recently patented, through the Scientific American Patent Agency, an improved window awning, which is so arranged as to afford shade and at the same time to create a draft, thus ensuring the thorough ventilation of the apartment to which it may be adjusted. The invention consists in making the wings of the awning detachable, so that, by means of suitably contrived braces, either or both sides may be pushed outward and held open. When one wing is thus arranged, the other is stretched across the awning diagonally and fastened to the window frame, thus forming a clear passage for the air into the room. The device can be readily applied to old awnings and will doubtless prove a convenient and pleasant addition to our means of keeping cool during the coming hot weather.

NEW BOOKS AND PUBLICATIONS.

FIFTH ANNUAL REPORT ON THE NOXIOUS, BENEFICIAL, AND OTHER INSECTS OF THE STATE OF MISSOURI, made to the State Board of Agriculture. By Charles V. Riley, State Entomologist. Jefferson City, Mo.: Regan & Carter.

This is not the first time we have had occasion to commend the liberality of the State of Missouri in engaging the distinguished scientist, to whom we are indebted for this valuable report, to examine and describe the insect tribes of its rapidly advancing province. As a trustworthy and instructive volume on a most interesting branch of science, this report will be highly valued by all who will obtain and read it.

THE GERMAN PHARMACOPCHA: Translated from the German and carefully compared with the Original Latin Text. By C. L. Lochman. Carlisle, Pa.: C. L. Lockman & Co.

We have received advance sheets of this work, which show at once the ability and accuracy with which it has been translated. The supremacy of German scientists in all branches of chemistry is everywhere acknowledged; and this text book will be found welcome to the libraries of our students and in our druggists' laboratories. Mr. Lochman has only recently contributed valuable technical information to our columns.

THE MINERAL SPRINGS OF NORTH AMERICA: How to reach and how to use them. By J. J. Moorman, M.D. Phila delphia: J. B. Lippincott & Co.

Dr. Moorman gives to the public in this timely volume, the result of s long experience in the investigation of the nature and medicinal applicability of mineral waters. He tells, in a clear and concise manner, to those desirous of regaining health through the healing fountains scattered over the country, just what places should be visited for the benefit of certain disorders, how the medicine should be used, its nature, and in fact about everything in which one going to a watering place for a purpose other than to follow the dictates of fashion would care to be posted. The work contains several illustrations of popular resorts with instructions how to get there, and also maps of the well known sulphur springs of Virginia.

THE BATH: Its History and Uses in Health and Disease. By R. T. Trail, M.D. 25 cents, paper; 50 cents, cloth. New York: S. R. Wells, 389 Broadway.

This is a neat little volume, in which the various forms and uses of baths are pleasantly described, especially with reference to hydropathy. The Turkish and Russian baths are, however, dismissed in one paragraph, and that is selected from the writings of a singularly prejudiced English physician. The text is liberally illustrated with engravings.

CONSUMPTION AND ITS TREATMENT IN ALL ITS FORMS. Dr. Carl Both. Boston: Alexander Moore. Boston and New York: Lee & Shepard. London: Trübner & Co.

This book is a valuable contribution to medical literature, being the work of an able and learned writer. It contains much interesting physiological information which will be of value to the general reader as well as to the physician.

THE SCIENCE OF HEALTH: Devoted to Health on Hygienic Principles. \$2 a year. New York: S. R. Wells, 389 Broadway. Also, from the same publisher:

PHRENOLOGICAL JOURNAL AND LIFE ILLUSTRATED.

These two magazines are well known to our readers, and are mentioned here on account of their sustained and uniform excellence. They contain much varied matter, some of waich is well selected from the current litera ture of both hem'spheres.

FORMULAS AND TABLES FOR ARCHITECTS AND ENGINEERS in Calculating the Strains and Capacity of Structures in Iron and Wood. By F. Schumann, C. E. Illustrated. Pocket size in flexible covers. Wushington: Warren

We need add no further words of recommendation of this convenien little volume than to say that it is a compendium of the formulas of the celebrated works of Weisbach, Rankine and other eminent authors, simplified and reduced to practical form. The book is designed for ready refer -a pocket guide, in fact-and hence space is economized throughout, though an incredible amount of information necessary in the daily routine of the engineer and architect is comprised within its covers. The contents include formulas for strength of material, strains, loads and all general calculations of similar character. The volume is illustrated with three hundred original diagrams, clucidating the text. The author, we think, in thus simplifying reliable foundlas so that they may readily supplant the rough and empirical rules too often carelessly used, has done a good work which we do not doubt will meet with a well deserved appreciation from all mem bers of the profession.

PATENT OFFICE DECISIONS.

PATENT FISHES .- THE AMERICAN SARDINE COMPANY .- APP LEGGETT. Commissioner:

LEGGETT, Commissioner:

Applicants seek to have the words "American Sardines" registered as their trade mark, to be applied noon boxes containing a preparation of fish of the herring family, to which Mediterranean sardines belong, known as the "Menhaden," or "Moss Bunker." These fish, it is alleged, are of larger size than sardines, and have not heretofore been used as an article of food, owing to their numerous fine bones. Applicants set forth that they have been accustomed to treat them by a certain patented process, whereby their ones become softened, and they are converted into a valuable article of food. As thus prepared they have packed them in suitable boxes as sardines are packed, placed them upon the market, and adopted the name or label "American Sardines" for them, by which it is alleged they are known to the trade, and appropriately designated, as to source or or light, as the product or article prepared and sold by the American Sardine Company. This name, it is said, is neither "the true denomination of the goods," nor of the fish themselves before their preparation, but is merely an arbitrary mark calculated to designate this manifacture as a product Turnished the tradeby this company, and is no further descriptive of the product than merchy as such a designation of it. This is all of the substance of applicants' arguments.

trade by this company, and is no further descriptive of the product than innerely as such a designation of it. This is all of the substance of applicants' arguments.

It is acknowledged that the word "sardines" is not intended to truly indicate, and does not truly indicate, the contents of the boxes—the kind of fish they contain. That word, then, is obviously calculated to deceive when placed on a box of applicants' prepared fish as a label. But the word "American" employed with it is supposed to obviate this objection. This word, however, is, from the nature of the case, merely descriptive. It is mecommon use to distinguish all sortsof products made in this country from foreign products. It cannot be divested of that significance when placed upon an article displayed for sale. It does not diminish the deception which the false name applied to the boxes of fish is naturally calculated to convey. It rather adds that deception, for in fact there are no American sardines. The designation of the boxes of fish is naturally calculated to convey. It rather adds that deception, for in fact there are no American sardines. The designation of a false name for them. If there were any American sardines known, or if any should be discovered in the waters of any of our coasts, American sardines would be their true name, and for that reason could not constitute a trade mark to designate them.

These words have not the virtue of a new name, a "coined" word, which, like the word "cocoaine," for instance, may be a legal trade mark. I specially is this true when they are applied as a label upon boxes of ish like ordinary sardine boxes. They are simply a missioner in such a use, calculated to produce a false impression. It is immaterial that, on account of their large size, an examination of the fash will readily undeceive the purchaser. The effect of the mark itself issione to be taken into consideration, if that is a false mark merely, and likely to be deceptive, it is not a legal trade mark and ought not to be registered. Such I

Recent American and Loreign Latents.

Improved Work Stand.

Chauncey S. Caple, Frankfort, N. Y., assignor to himself and William Gates, of same place.-This invention consists in the improvement of work stands. The center piece is a casting of metal with four vertical holes arranged around the vertical center in which the pivot pin of the table top works. In these holes are introduced the upper ends of the lugs. A ring or dish connects the legs at the middle, and has a recess in the underside, and as many radial holes extending from the periphery to it as there are legs, and the legs, being notched, are fitted in corresponding notches in the disk, and secured by bolts inserted in the said holes, and fastened by keys driven into the ends projecting into the recess, and having holes provided for said keys. A spool stand is fastened detachably to the top of the table center. For so fastening it, and having it at the same time so that it can be readily detached, a recess is arranged in the bottom of the disk of metal, and a hole near the periphery large enough to admit the head of a pin. From this hole the slot, as wide as the shankof a pin. extends to the center. The pin is fitted into the vertical hole in the center of the table, and has a soiled spring fitted in the bearing against the table top so as to constantly press it down. A lever is connected at one end to the pin at its lower end, and extends towards the periphery of the table top as far as the opening, when the finger can be applied to push it down and raise the pin when the cover of the opening is removed. The pin head being suitably shaped and held in it by the pressure of the spring, holds the stand in place so that it cannot be detached until the pin is raised by the lever. To detach the stand, the head of the pin is raised out of the coun ersunk recess, and the stand moved sidewise till the hole comes to the pin when it can be lifted off.

Improved Milk Cooler.
William Hodgdon, North Craftsbury, Vt.—This invention consists of large water pan divided into compartments, with a separate water supply pipe for each and a discharge pipe connection of each with a main waste water pipe, arranged for filling and regulating the temperature in each independently. A separate milk pan is arranged for each compartment, each the milk of each milking independently, so that the treatment can be va ried as to the temperature, as required during the time it has to be cooled The arrangement is also designed to facilitate the removal of the milk name readily for painting the bottoms, which has to be done frequently to protect them from corrosion; also for cleansing the large pan.

Improved Combined Stop Cock, Check Valve, and Blow Off. Elbridge G. Cushing, Oswego, N. Y.-This invention consists in a combined stop cock, check valve, and blow off cock. The shell of an ordinary stop cock is used with the inlet pipe connection arranged near the bottom and the outlet pipes near the top. ... The hollow plug cock has an opening in to the lower part coinciding with the inlet pipe, and two others in the upper part coinciding with the outlet pipes. It also has a diaphragmbetween the said openings, dividing the hollow space into two chambers. A nass age is formed through this diaphragm, and a valve seat arrangedon the up perside of it, on which a check valve is fitted to close downward. This valve has a tubular extension upon the upper side, in which the smooth part of the stem fits in such manner as to form a guide for the valve. This stem screws out and in through the top of the plug, having a hand wheel on the top, and it has a shoulder on the lower end to be forced down on the top of the valve to fasten it closed. This shoulder will also limit the amount of the opening of the valve in case it be desirable to do so. One pipe connection is to be connected with the boiler, and the other to be used for the blow off. When the water is to be forced into the boiler, the plug will be adjusted, by which the passage is opened from the inlet pipe up through the valve and pipe into the boiler, and the escape is closed; but when the boiler is to be blown off, the position of the parts may besuitably altered.

Improved Adjustable Sewing Machine Chair.

Franklin Chichester, Milwaukee, Wis .- This invention has for its object to furnish an improved chair for the use of sewing machine operators, which shall be so constructed that it maybe readily adjusted as the convenience of the operator may be required, and the back of whichwill automatically adjust itself to the back of the operator. The pedestal is secured to the center of a cross bar, the ends of which have downwardly projecting arms formed upon them, to which are attached pivots. To the outer ends of the pivots are pivoted plates attached to the side edges of the chair seat. The upper middle part of the rear arms of the plates is cutaway so that its loweredge may be about upon slevel with the top of the cross bar, and in said edge are formed notches to receive the latch. The latch may be drawn out to enter the notches of the plate, and pushed in to release said plate. It is kept from lateral movement by guide lugs, and is locked in either position by a projection formed upon said cross bar which enters no ches on the inder side. Springs are connected with the lower side of the forward part of the chair seat. By this construction the chair seat is held securely in place when adjusted by the latches, the springs simply making the adjustment more easy. The chairmay be used as a rocking or oscillating chair. Springs are attached to the connecting bars, which pass up through slots between the plates and the edges of the chair seat, and their upper ends support the forward ends of the arms. Latches arc pivoted to these bars which catch upon notches formed in the upper edges of the forward parts of the plates. The lower edge of the lower part of the chair back is hinged so that it may be adjusted in any desired position by adjusting the arms by by means of the bars and latches, the springs making the adjustment more easy. The lower part of the back consists of a cross bar and two side bars. A coiled spring is so arranged as to tend to throw the lower end of the upper part of the back forward against the back of the person sitting in

Improved Carriage Axle Box.

Joseph Jones, James Dunkerley, and Joseph Dunkerley, Paterson, N. J. -This invention has for its object to furnish an improved axle arm and axle box so constructed as to prevent the entrance of mud and sand at the innerend of the hub, to hold the axle box securely in place upon the axle arm, and to enable the axle to be conveniently kept thoroughly lubricated. The axle box fits and revolves upon the axle, and its inner end is kept in place by a collar formed upon the said axle. The outer side of the collar is received to receive the inner end of the box, which end is allowed to project a little beyond the inner end of the hub for this purpose, so that mud and sand may be wholly prevented from working in at the end of the hub. The inner end of the box is also reamed out and enlarged to form a shouldertorest against a shoulder formed upon the axle to relieve the collar from having to support the whole inward pressure of the wheel. In the outer end of the axle is formed a screw hole into which is screwed a screw, the head of which is made of a little larger diameter than the axle, so as to rest against a shoulder. The screw projects beyond its head, and the prolecting part is perforated longitudinally, and from the inner end of said perforation an inclined hole is formed, leading out at the inner side of the head of said screw. A screw cap screws into the recessed outer end of the box, and is flanged to overlap the outer end of the hub. The cap is made hollow toserve as an oil chamber, the inner wall of said cap being perforated to receive the perforated end of the screw, so that the oil from said chamber may pass through the perforations of the screw to the axle arm, which is grooved longitudinally to conduct the oil to the inner part of said axle, and thus lubricate its entire surface. The box has lugs formed upon its outer surface to prevent it from turning in the hub.

Improved Saw Set.

Cyrus E. Grandy, Stafford Springs, Conn., assignor to himself, Ziba B. Grandy, and William D. Heald, of same place .- This invention consists in the mode of combining certain instrumentalities to form a saw set for band saws. The stock to which the parts of the saw set are attached forms a handle and base of the instrument. The die bar is hinged to the end of the stock and carries the die. Power is applied by means of a cam lever, confined to the end of the die bar by means of an adjustable link. The back motion of the die bar is produced by a spring. The spring keeps the end of the die bar in close contact with the cam end of the lever, and the power is applied by simply raising the end or operating the lever. The purchase thus obtained is very great, and the power is applied gradually. A guideslides on the stock so that it can be adjusted to the width of the saw. This guide is used in setting band and gig saws. A loose adjustable pawlis attached to the stock, which in setting band saws engages with the teeth, and thereby governs the position of the teeth in relation to the dies. Allowing the teeth of the saw to be of uniform size a movement of the pawl to each alternate toot's will bring the proper tooth to be set in contact with the die.

Improved "Knock Down" Chair,

Charles R. Long, Louisville, Ky., assignor to Long & Brothers, of same place .- Formaking knock down chairs, for convenience of packing them in parts for shipment and storage and then setting them up readily, the in ventor proposes to bevel the ends of the back rail of the scat frame, and form a half round notch in each end fitting the tenon of the side stretchers, and arrange them so that said tenons extend through and by said notches to enter the noise for them in the posts of the back of the chair, in which oblique notches are made for the ends of the back rail coinciding with the holes for the tenons of the side stretchers. When the seat frame is put together, and the seat bottom woven in it, the back rail and the side stretch ers can be put together with the back posts by entering them in the notches and holes together from the front. The back rail and side stretchers are fitted together and glued, and the side and front stretchers connected to the front posts in the ordinary way. The seat bottom, when woven on, forms an L-shaped structure which nests together compactly for shipping The back posts are connected together by the back cross pieces, and thus are in convenient shape for packing compactly.

Improved Weather Strip.

Jerome Bacon and Gilbert Bacon, Medina, Wis.—The object of this inention is to furnish a weather strip for doors. Triangular shaped pieces of wood are connected together by butt hinges and by a spring, a piece of sheet rubber covering them. This rubber extends a little above the upper piece and considerably below the lower piece. Metallic strips, by ns of which the rubber is fastened, are placed even with the upper and the lower edges of the wood. The upper piece is screwed to the outside of the door. A lug is made in the door sili or in the jamb casing of the door, and a hook or projection is attached to the end of the other part of the oor strip. When the door is closed the hook catches on the lug and draws the part down on the sill, thus making a tight joint under the door. When the door is opened the spring forces the lower part upward so that it will swingclear of all obstructions.

Improved Washing Machine.

Nelson O. Wilcox, Omaha, Neb .- The object of this invention is to provide onvenient means for washing clothes, and it consists in an extension be for adapting it and fastening it to tubs of different diameter, and in a corrugated springroller, which is placed directly over and nearly in contact with the bed rollers. It will be understood that when the clothes are made to pass between the two rollers the corrugated roller must be forced upward, but that motion will be resisted by the springs, and consequently the clothes will be squeezed by a force proportioned to the strength of the springs.

Improved Thrashing Machine.

Charles M. Powers, Ridgewood, N. J.-The object of this lovention is to furnish a machine for thrashing and cleaning grain, which may be used either by hand or motive power, and which shall effectually beat out the grain without injuring the straw. The frame of the machine is of rectangular form and elevated to a convenient hight. In the middle and on a line with the platform is the corrugated and perforated bed. The material to be threshed is laid upon an endless apron, which carries it along over the bed, where the grain is beaten out. The straw is then carried along by another apron and discharged from the tail of the machine. Wnile the grain is passing over the bed it is subjected to the action of the beater, which is composed of a series of bars. The thrashing is effected by a rapid up and down motion of the beater, the bars of which are brought in contact, or nearly in contact, with the bed at each stroke. The motion of the beater is produced by means of the pin wheel on the driving shaft. The grain and chaff fall upon sieves as they pass through the bed. These sieves are given a vibrating motion by means of the ordinary fanning mill device.