the cylinder or outer casing of rotary steam engines, by combining with the said packing ring a series of segment wedges, operated ai multaneou
described.
To Leonard Goodrich, of New York, N. Y., for im roved Ship's Light
I claim hanging the screwed socket or frame containing the glass, so as to turn freely within a frame, which swings on a hinge provided with 2 slot, or its equivalent, whereby the socket can be screwed into or unscrewed from the fixed socket, and when unscrewed be swung back, substantially as herein described.
[See engraving in No. 15, Vol. 6, Sci. Am.] To S. S. Hurlbut, of Raaine, Wis., for improvemen Grain Harvester
I first claim combining with a reaping machine, a self-acting weighing apparatus for weighing the grain into any required quantity to form sheaves or bundles of a uniform weight, as described, depositing the same upon the ground, in readiness to be tied, whilst the reaping machine is"drawn forward and cuts the grain, the said weighing apparatus being made adjustive, so as to increase or diminish the size of the bundles at pleasure, and this I claim, whether the weighing apparatus be made and arranged, as dcscribed, or in any other way which is substantially the same, or whether combined with the aforesaid reaping machine, or any other of a similar character. Second, I likewise claim the combination of the bent holders, with the inclined endless conveyor, for holding the grain thereupon, whilat conveying it to the weighing and depositing apparatus, as aforesaid.
To H. G. Thompson, of New York, N. Y., for im-

I claim the method substantially as above described, of regulating the packing ring interposed between the steam wheel and head of the cylinder, or outer casing of rotary steam engines, by combining with the said packing ring, a series of segment wedges, operated simultaneously in the manner, substantially a described.
designs.
To 8. A. House, of Mechanicaville, N. Y., for a Design for Cooking Stoves, and also a patent for a Design on Parlor Stove
[What are the Commissioner and his eight Examiners about, these days? The list above shows but a small week's work for the twen-ty-five men who are attached to the Office in its various departments. Well, we hope they will make up a good long list some of these nighte.

## For the Soientifio American.) <br> Thick and Thin Belts.

Several weeks aince I wrote you, haaking inquiry as to whether the thickness of belts can make any difference in the speed of machinery. My reasons for asking the question arose from the fact that I have always noticed in substituting a thick for a thin belt, and in substituting a thick for a thin belt, and
vice versa, particularly on machines where the calculations are nice-such as the cone belts on speeders-that a change in the working of the machine always ensued. From the remarks you made at the time, in answer to my question, I was inclined to think you misapprehended my meaning entirely; and you disposed of the matter in a very summary manpor by saying: "The machinist of good perner by saying: "The machinist of good per ceptive faculties has what is called a ' knack
in adapting every thing under his care to perform its duty in the best possible manner this 'knack,' like the skill of the painter, cannot be taught by any rule." Now it was not as to the practicability of thick and thin belte, that I made the inquiry; nor was I desirous that I made the inquiry; nor was I desirous to be enlightened as it regards any particular
" knack," but it was in relation to the principle involved in the matter, that I wanted light. I supposed this subject might be quite familiar to scientific men, but, on considerable inquiry, I find that this thing has hardly been thought of ; and, in some instances, where it has been presented for the first time, it has been met by a strange incredulity; it seems exceedingly difficult for many to conceive it possible that the thickness of a beltcan make any differonce in speed, as a matter of principle. Since I wrote you I haveinstituted a series of experiments, and am prepared to speak with confi-
dence and considsrable precision, in relatio
to this matter. Besides, I observe that you New Haven correspondent has been thinking on the subject, and is, in the main, on the right track. To make the thing plain, let u suppose a driving pulley 20 inches in diame ter, and a driven pulley 10 inches in diameter and the belt going round both two-eighthe of an inch thick, and that each pulle is hal covered by the belt-which is not the fact, quite, but it will not affect the argument Now, the circumference of the 20 -inch pulley is 62.832 inches, and that of the 10 -inch, 31.416 inches. The length of belting which lies continually on the 20 -inch pulley, which we have supposed covered one half the cir cumference, viz., 31.416 inches, in being trans ferred to the 10 -inch pulley, whose entire circumference, of course, is just half that of the 20 -inch pulley, is found to be insufficient to produce one revolution of this pulley, or to carry it through 31.416 inches of space, for the obvious reason that this length of belt describing the large circle, on being transferred to the amall one, will not cover the same num ber of inches in consequence of its having to contract so much more than on the large pulley. Let us attempt to make this atill more plain: we wish to cover a pulley 6 inches in diameter, with leather two-eighths of an inch thick; the circumference of a 6 -inch diameter is 18 . 849 inches; but this length of straigh belting will not reach round the pulley. Why? Because we have added four-eights of an inc to the diameter of the pulley, by the covering and we shall find that, by adding the circum ference of this additional diameter to the original circumference, we shall have the length of two-eigth-inch thick leather required to cover the pulley. Example:-The circumfe rence of a four-eighth-inch diameter is 1.571 $+18849=20 \cdot 420$ inches ; hence it is plain to see how thick and thin belta affect the rela tive speed of machines. It is not pretended that belts, generally, will affect the speed the entire amount of their thickness ; it will depend upon the quality of the belts.
Some of our best and most practical manufac turers, here, add " the thickness of the belt to the diameter of the pulley," and this rule i probably not far from just in the majority of cases; but I am persuaded that more than this should be added where the pulleys are very small. Perhaps the rule laid down by your correspondent, Mr. Chaffee, is not far out of the way, viz., "That the belt increases the size of the pulley by so much of the thicknes of the strap as is not strained.'
Let it be remembered that the greater the disparity in the driver and driven pulleys, the more difference, in time and power, is perceived, and if the two pulleys are the rame size, the thickness of the belt cannot make a hair' difference in the speed, of course Mr . C seems to have groped in the dark on this poin
E. B. M.

## Manchester, N. H., Jan. 30, 1851 <br> Foreign Correspondence.

Glasgow, Jan. 16, 1851.
Cotton.-New Steamer.-An error of 70,000 bales of cotton, in the year's account at Liverpool, has been discovered. The erro is in the wrong way for the United States The exports from Bombay are for the year, to The exporta from Bombay are for the year, to
30th November, nearly 376,000 bales, of which 266,000 came here, and 110,000 went to China. The receipts from the East Indies are treble of last year's quantity. In the previous statement,, of course, shipments from Calcut ta and Madras are not counted. The fever is very bad at Lahore, Punjaub; half of the First Fusiliers, and three-fourths of another regiment, are in barracks. Having beaten the Sikhs we shall now have to combat the fever.
The new steamers building here, for the Glasgow and New Yort line, are to be larger than the City of Glasgow, or, at least, more powerful, but propellers. Two new steamer are building for the Cunard line, larger than the Africe and Asia. They have been named in some journals, the Arabia and Persia; thts is an error; I understand one of them is to be known as the Scutia,-so they should call the other the Anglia. The Asia's last passage is asid to be the shortest crossing ever made10 days $4 \frac{1}{2}$ hours. An American ship, the

Oriental, made a splendid run from Canton to London. It was deemed the quickest, until an Aberdeen house looked up their ledger and found that their ship, the John Bunyan, (wor thy nume,) had done better.

A new article of hoots and shoes has just ome up in England. It is called the Pana ma Corium, the leather cloth, and was in vented by a person named Hull. The materi al is cotton, but has the mass and general ap pearance of leather, and receives a polish from ordinary blacking, and in the same way. It is used only for the upper, the sole being eather. It is said to be as durable asleather ver cracks or splits, and possesses the a dvan tage of not drawing the foot.

California Gold.
A machine is in preparation in this city esigned for crushing quartz, which it is said will break up one hundred tons per day. It intended for the Rocky Bar Mining Compa y , and will be sent out by the steamer Pacific, n May next.
We have no word of the Atlantic yet.

## TO CORRESPONDENTS.

"C. C., of N. J." -The advertisement for a draughtaman belongs to the same parties who equire answers to be directed to box 664, $P$ O., this city. Your volume of the Scientific American was directed to you, and left at 73 Courtlandt street about two weeks ago.
"T. G.S., of Pa."-Your apparatus is no doubt a good one, and will accomplish all that it is recommended to, but to engage in the sale of patent rights is not in our line of business. We should be pleased to insert an advertisement for you in accordance with our published terms; see heading over advertisements in another column.
"L. B. G., of Pa."-We think you may be obliged to alter your claim slightly, but we see nothing to preventyour obtaining your patent, you have properly described the machine throughout and furnished the office suitable drawings. An engraving will cost you $\$ 8$.
"E. R. B., of N Y"-It is too late already onter for the World's Fair. You should have got your model ready earlier.
"E. G., of Ga."一Your letter of the 4 th has been passed over to the parties interested in that advertisement
"L. F. H., of Vt."-We have no more copies of Minifie's Drawing Books on hand. We advise you to address Wm. Minifie \& Co. Baltimore, Md., who will give you information on both the subjects of your enquiry
"H. S., of Mass."-Your suggestions in regard to placing plates of iron alternately in opposite directions, во as to destroy the regularity of the grain, is correct, as concerns increasing the strength of a boiler, but it is a theory too well known by all boiler makers to admit of its being patentable.
"R. L., of 0 ."一The specifications and drawings of your press have been forwarded to the P. O., and fees paid. It is not possible for us to inform you at what time the application will come up for examinatian but we presume it will not be "long" hence.
"M. D., of Pa."-We have not complete ets of volume 4, but can furnish about 30 numbers (not consecutive) for $\$ 1$
"T. D. D., of Vt."-Blanchard's patent was originally granted in 1843, and has since been re-issued. A. K. Carter, of Newark, N. J., is the agent for Blanchard's machine, and you had better address a letter of enquiry to him.
"G. W., of O."-The converting of a common fire place or bor stove into a steam boiler is certainly a new idea but not a patentable one.
' R. S. S., of Pa." -Your friend's model has been received but it is impossible for us to conceive the least advantage he derives from his arrangement and manner of operating the pitman. Let the inventor express his views by letter.
"J. T., of Pa."-Your mode of constructing the tubes we believe to be new and patentable, and your theory is in most respects correct. Perhaps however you would do well to consult some of your practical engineers upoa the sub. ject of the boiler's operation on a lauge sca
Scientific Amexican．
＂M．W．S．，of Mass．＂一The model of your mowing machine is received and has been ex
amined．We are of the opinion that the prin ciple of operating the cutters arranged upon a revolving bed，is new and patentable．

Dr．H．C．，of Mass．＂－We havereferred to No．9，and do not find Mr．Helton＇s name mentioned ；perhaps you are mistaken in th Number．

C．W．A．，of Va．＂－We do not know of any such wells as those you speals of．If we come acrose such information we will notice it．
＂N．S．，of Ind．＂一There is no doubt bu what the Furnace Blower which you describe is new，but whether it would pay you to make an application for a patent upon it，is for you alone to decide．If you could furnish us with a model，we could decide more definitely con－ cerning the matter and answer your inquirie more fully．

W．C．B．，of N．Y．＂－Caveat fees are in varia．bly $\$ 20$ ．We will consult with you and give our opinion of the invention，when you call upun us．
＂E．T．of Ill．＂一The Camera and a copy of Ranlett＇s Architect were sent to Messrs， McNeil \＆Jarome， 69 Liberty street，severa weeks since．A condenser for the pu
name，would，we think，be valuable．
＂W．P．C．，of O．＂－Loadston can be fur nished at $\$ 2$ per pound，and black oxide co balt at $\$ 2$ per oz
＂E：J．U．，of 0．＂—Your apparatus for milking cows by mechanical means is believed not to be patentable．Recommending it to be superior to the apparatus invented and pa－ tented by Knapp is not adding much to it reputation．
milker yet．

J．G．，of N．Y．＂—The patent would cost you altogethes about $\$ 50$

H．P．，of N．J．＂－You will find an article on the eubject of friction on another page． By it，no difference it seems would be experi－ enced in the amount of friction，if the whole weight of the 12 small shafte and 6 large
shafts be equal．Whatever the difference in shafts be equal．Whatever the difference in
weight may be，then there will be a difference weight ma
in friction．
＂D．J．，of Mass．＂－Why have you not answered our letter sent to you more than two months ago．We have your papers here．

A．B．，of Conn．＂－Yes，many plans have been tried and some are now in use for using the exhaust steam over，such as Wolfe＇s En－
gine．What will you gain oy doing away wine．What will you lead off valve？
＂A．A．F．，of N．Y．＂－A tube of clay would not answer．The platina leing the only metal indestructable in the fire，is the reason why it answers，but it cannot be done
but at great expense．We sent the engraving to Mr．Paine，saying that it was unsatisfac－ tory to us．He bas promised to provide us suitable drawing
＂G．J．H．，of Tenn．＂－By addressing a let－ ter to A．K．Carter，at Newark，N．I，you will get the information you desire；also David Stone，of Dana，Mass．，has a machine for turn－ ing spokes；his advertizement you will find in another column of the paper
G．B．M．，of Texas．＂－The engravings of your engine were forwarded to your address， through Harper \＆Bros．，on the 5th inst
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J．S．，of Mrss．；J．S．S．，of N．Y．；S．B．，of Conn．，J．M．B．，of N．Y．；H．H．O．，of Cona． J．T．D．，of N．Y．；W．\＆P．，of Pa．；G．B． W．，of Maus．；R．L．，of O．；T．H．\＆Sons，o N．Y．；J．W．R．，of N．Y．；T．R．，of N．J．；T R．，of Mass．；A．C．A．，of Conn．；S．\＆L．，o N．Y．，and J．C．K．，of N．Y

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N．Y．，$\$ 30$ ；S．\＆L．of N．Y．$\$ 8$ ；J．W O N．Y．，$\$ 30$ ；S．\＆L．，of N．Y．，$\$ 8$ ；J．W．O．，
of O．，$\$ 30$ ，and T．H．\＆Sons，of N．Y．，$\$ 25$ ．

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obtained on applicat


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is well adapted to turning spokes，lasta，and handlea； is well adapted to turning spokes，lasta，and handles，
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cipalaities of the United States and Canada．Oder

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